I CLAIM:

1. An energy absorber for use in a fall protection system, said energy absorber comprising:

a housing having

a tubular body portion having a tubular first end portion and a tubular second end portion and defining a longitudinal axis extending therebetween;

an end wall portion secured to the first end portion to substantially occlude same and having defined therethrough an aperture disposed about said longitudinal axis;

a plunger assembly including a plunger head disposed within said body portion and a plunger rod rigidly extending from said plunger head, through the aperture in the end wall portion, to a terminal end, the plunger assembly being disposed at a rest position, whereat the plunger head is relatively distal to the end wall portion, and being mounted to said housing for longitudinal movement between the rest position and an extended position, whereat the plunger head is relatively proximal to the end wall portion; and

a quantity of resilient compressible material disposed within said body portion between the end wall portion and the plunger head for compression by the plunger head upon movement of the plunger assembly from the rest position to the extended position thereof, and is adapted to absorb energy in the course of such compression in a manner such that, if the terminal end of the plunger rod and the second end portion of the body portion are drawn apart by the load of an object of a predetermined mass falling a predetermined distance, the maximum arrest force exerted on the object does not exceed a predetermined level.

2. An energy absorber according to claim 1, wherein the plunger head is mounted in the manner of a piston within the body portion and the plunger rod extends through the aperture in the manner of a piston rod to provide for said longitudinal movement of the plunger assembly.

3. An energy absorber according to claim 1, wherein the quantity of resilient compressible material is a compressible tubular cushion disposed in the housing in spaced-relation to the main body portion, in close-fitting relation to the end wall portion and to the plunger head, and in surrounding relation to the plunger rod.

4. An energy absorber according to claim 3, wherein the tubular cushion comprises a plurality of longitudinally-stacked tubular cushion segments.

5. An energy absorber according to claim 4, wherein each tubular cushion segment has defined thereon a plurality of annular grooves, longitudinally-spaced from one another and arranged coaxial to the body portion.

6. An energy absorber according to claim 5, wherein each tubular cushion segment has a plurality of substantially cylindrical exterior surfaces, coaxial with the body portion and separated from one another by the annular grooves.

7. An energy absorber according to claim 6, wherein the body portion is a round tube.

8. An energy absorber according to claim 7, wherein the tubular cushion is constructed from an elastomer having a hardness of 65 Shore A (ASTM D-2240), tensile strength of 3700 psi (ASTM D-412); modulus 1.8 mPa (ASTM D-412); elongation 530% (ASTM D-412); s.g. 1.13; compressive deflection of 20% and compression of 8.7% (70EC).

9. An energy absorber according to claim 8, wherein the elastomer is a blend of nitrile rubber and polyvinyl chloride.

10. An energy absorber according to claim 9, wherein the annular grooves are substantially square in radial cross-section.

11. An energy absorber according to claim 1, further comprising a cap threaded on the exterior of the second end portion of the body portion to occlude same and constrain the plunger assembly against longitudinal movement beyond the rest position.

12. An energy absorber according to claim 1, further comprising arresting means for arresting movement of the plunger assembly towards the rest position thereof.

13. An energy absorber according to claim 12, wherein the arresting means comprises a pair of gripping arms disposed on opposite radial sides of the plunger rod, exteriorly of the housing, each gripping arm being operatively pivotally mounted to the housing for pivotal movement between a gripping position, whereat it bears in frictionally-gripping relation against the plunger rod, and a release position, whereat it is disposed apart from the plunger rod.

14. An energy absorber according to claim 13, further comprising a pair of arm mounts secured to the end wall portion, on opposite radial sides of the aperture, each having a respective one of the gripping arms pivotally mounted thereto for said pivotal movement.

15. An energy absorber according to claim 14, further comprising a limit plate operatively mounted to the housing in overlying relation to the gripping arms to constrain movement of the gripping arms beyond their respective release positions.

16. An energy absorber according to claim 15, wherein the limit plate is operatively releasably mounted to the housing.

17. An energy absorber according to claim 1, further comprising a grommet disposed in encircling relation to the plunger rod and disposed, in use, in sealing relation against the aperture to arrest infiltration of moisture when the plunger assembly is at the rest position.

18. An energy absorber according to claim 1, wherein the predetermined mass is 100 kilograms, the predetermined distance is 1.8 meters and the predetermined level is 4 kN and wherein, in use, the fall protection system does not expose the falling object to undesirable levels of rebound.

19. An energy absorber according to claim 1, further comprising connection means for operatively interposing the energy absorber between a lifeline and a safety harness or belt.

20. An energy absorber according to claim 19, wherein the connection means comprises a first lug bolted to the terminal end of the plunger rod and a second lug formed integrally with the cap.